<u>Figu</u>	<u>re</u> <u>Title</u>	<u>Page</u>
2-1	Upper White River Basin	
2-2	White River at Lake Indy	
2-3	White River Upstream of Raymond Street Bridge	
2-4	Fall Creek Downstream of Illinois Street Bridge	
2-5	Fall Creek Upstream from 16th Street	
2-6	Little Eagle Creek at Michigan Street	2-8
2-7	Eagle Creek Upstream of Minnesota Street and Pershing Avenue	
2-8	Pleasant Run at Ellenberger Park	2-10
2-9	Pleasant Run at Bluff Road	2-10
2-10	Pogues Run Near Temple Avenue Upstream of CSO 099	2-11
2-11	Pogues Run Downstream of Arsenal and 10th Street Bridge and School 101	2-11
2-12	Lick Creek Downstream of CSO 235	2-12
2-13	Lick Creek Near Bluff Road	2-12
2-14	State Ditch Downstream of CSO 217	2-13
2-15	State Ditch Downstream of Mooresville Street	2-13
2-16	White River: Percent Compliance with Indiana Dissolved Oxygen Standard of 4 mg/L -	2-20
2-17	White River: Percent Compliance with Indiana Dissolved Oxygen Standard of 5 mg/L -	2-20
2-18	White River Continuous Dissolved Oxygen Data: 16th Street	2-21
2-19	White River Continuous Dissolved Oxygen Data: Waverly (SR 144)	2-21
2-20	White River Continuous Dissolved Oxygen Data: IPL Station	2-22
2-21	White River Average Daily Continuous Dissolved Oxygen Data: 16th Street	2-22
2-22	White River Average Daily Continuous Dissolved Oxygen Data: IPL Station	2-23
2-23	White River Average Daily Continuous Dissolved Oxygen Data: Waverly (SR 144)	2-23
2-24	White River E.coli Data: 96th Street	2-24
2-25	White River E.coli Data: 82nd/86th Street	2-24
2-26	White River E.coli Data: Marina Drive	2-25
2-27	White River E.coli Data: Ruth Drive	2-25
2-28	White River E.coli Data: Broad Ripple Park Ramp	2-26
2-29	White River E.coli Data: 6800 Cornell Avenue	2-26



<u>Figu</u>	<u>Title</u>	<u>Page</u>
2-30	White River <i>E.coli</i> Data: Lake Indy	- 2-27
2-31	White River E.coli Data: 30th Street	-2-27
2-32	White River E.coli Data: New York Street	-2-28
2-33	White River E.coli Data: Morris Street	-2-28
2-34	White River E.coli Data: Harding Street	- 2-29
2-35	White River E.coli Data: Raymond Street	- 2-29
2-36	White River <i>E.coli</i> Data: Tibbs/Banta Landfill	-2-30
2-37	White River E.coli Data: Southwestway Park	-2-30
2-38	White River E.coli Data: Waverly (SR 144)	-2-31
2-39	Percent Compliance with Indiana Single Sample Maximum <i>E.coli</i> Bacteria Standard of	
235 c	fu/100 mL in the White River	-2-31
2-40	White River Stream Segments	-2-32
2-41	Percent Compliance with Indiana Dissolved Oxygen Standard of 4 mg/L in Fall Creek	-2-35
2-42	Fall Creek Measured Dissolved Oxygen at Boulevard Station	-2-35
2-43	Fall Creek E.coli Data: 71st Street	-2-36
2-44	Fall Creek <i>E.coli</i> Data: Emerson Way	-2-36
2-45	Fall Creek <i>E.coli</i> Data: 5700 Fall Creek Parkway	-2-37
2-46	Fall Creek <i>E.coli</i> Data: 4500 Fall Creek Parkway	-2-37
2-47	Fall Creek <i>E.coli</i> Data: Keystone Avenue	-2-38
2-48	Fall Creek <i>E.coli</i> Data: 38th Street	-2-38
2-49	Fall Creek <i>E.coli</i> Data: 30th Street	-2-39
2-50	Fall Creek <i>E.coli</i> Data: Central Avenue	-2-39
2-51	Fall Creek <i>E.coli</i> Data: Capitol Avenue	- 2-40
2-52	Fall Creek <i>E.coli</i> Data: Martin Luther King, Jr. Street	- 2-40
2-53	Fall Creek <i>E.coli</i> Data: 16th Street	-2-41
2-54	Fall Creek <i>E.coli</i> Data: Stadium Drive	-2-41
2-55	Percent Compliance with Indiana Single Sample Maximum <i>E.coli</i> Bacteria Standard of	
235 c	fu/100 mL in Fall Creek	- 2-42
2-56	Percent Compliance with Indiana Monthly Geometric Mean E.coli Bacteria Standard in	
Fall (Creek	- 2-42



<u>Figu</u>	<u>re</u> <u>Title</u> <u>P</u>	<u>'age</u>
2-57	Fall Creek Stream Segments	2-43
2-58	Percent Compliance with Indiana Dissolved Oxygen Standard of 4 mg/L in Eagle Creek-	2-45
2-59	Percent Compliance with Indiana Dissolved Oxygen Standard of 4 mg/L in Eagle Creek-	2-46
2-60	Eagle Creek Stream Segments	2-47
2-61	Percent Compliance with Indiana Dissolved Oxygen Standard of 4 mg/L in Pleasant Run	2-49
2-62	Percent Compliance with Indiana Dissolved Oxygen Standard of 4 mg/L in Bean Creek -	2-49
2-63	Pleasant Run and Bean Creek Stream Segments	2-51
2-64	Percent Compliance with Indiana Dissolved Oxygen Standard of 4 mg/L in Pogues Run -	2-52
2-65	Pogues Run Stream Segments	2-54
2-66	Lick Creek Stream Segments	2-56
2-67	State Ditch Stream Segments	2-57
2-68	Interceptor Network Location Map	2-58
2-69	Septic Tank Elimination Program	2-65
2-70	Wet Weather Diversion Schematic	2-67
2-71	Belmont AWT Plant Processes Flow Schematic	2-70
2-72	Southport AWT Plant Process Flow Schematic	2-76
2-73	Average Annual E. coli Bacteria Load (cfu/yr) from CSO Sources	2-78
2-74	Ten Largest CSO BOD Load Discharge Points	2-80
2-75	Ten Largest CSO TSS Load Discharge Points (excludes 007 PE Bypass)	2-81
2-76	Monitored Instream <i>E.coli</i> Bacteria Concentrations Frequency Curve: White River in	
India	napolis	2-83
2-77	Monitored Instream Bacteria Concentrations Frequency Curve: Fall Creek	2-83
2-78	Monitored Instream Bacteria Concentrations Frequency Curve: Eagle Creek	2-84
2-79	Monitored Instream Bacteria Concentrations Frequency Curve: Pleasant Run	2-84
2-80	Monitored Instream Bacteria Concentrations Frequency Curve: Bean Creek	2-85
2-81	Monitored Instream Bacteria Concentrations: Pogues Run	2-85
2-82	Maximum Predicted Bacteria Concentrations Caused by CSOs in the White River	2-86
2-83	Percent Compliance with Indiana Single Sample Maximum of $E.\ coli$ on the White River	
Down	nstream of Marion County	2-87
2-84	Average Annual E. coli Bacteria Load (cfu/yr) from Stormwater Sources	2-88
2-85	Average Annual E. coli Bacteria Load (cfu/yr) from Failing Septic Sources	2-90



<u>Fig</u>	<u>ure</u> <u>Title</u>	Page
2-86	Average Annual E. coli Bacteria Load (cfu/yr) from Unpermitted Sanitary Sources	2-91
2-87	Average Annual E. coli Bacteria Load (cfu/yr) from Instream Wildlife	2-93
2-88	Average Annual E. coli Bacteria Load (cfu/yr) from AWT Plants' Treated Effluent	2-94
3-1	Inflatable Dam	3-6
3-2	Motor-operated Gate Regulator	3-6
3-3	Pioneer Reservoir Normal Fill and Overflow Path	3-8
3-4	Chicago TARP Tunnel	3-9
3-5	Enhanced High Rate Clarification (EHRC) System	3-10
3-6	Swirl Concentrator (Vortex Separator)	3-15
3-7	Partial Separation: Cost per Gallon of CSO Captured	3-24
3-8	Partial Separation: Total Scores by Technology	3-24
4-1	Stream Restoration Projects from 1994 through 2004	4-8
4-2	Marion County Drainage Complaints	4-11
4-3	Annual Pounds of Hazardous Waste Collected by ToxDrop	4-15
4-4	Available In-System Storage Volume	4-19
4-5	CSO Outfall and Tributary Area Location Map for In-System Storage	4-20
4-6	In-System Storage Analysis	4-21
4-7	Mechanical Sluice Gates	4-21
4-8	Typical Inflatable Dam	4-23
4-9	Cost Comparison Analysis - In-System Storage Devices	4-24
4-10	72-Inch Pinch Valve	4-25
4-11	Indianapolis Wastewater Collection and Treatment Facilities	4-29
4-12	Schematic of CSO Long Term Control Plan Variant	4-30
4-13	Fall Creek Plan 1	4-34
4-14	Fall Creek Plan 2	4-35
4-15	Pogues Run Plan 1	4-36
4-16	Pogues Run Plan 2	4-38
4-17	Pleasant Run Plan 1 and 2	4-39
4-18	Eagle Creek Plan 1 and 2	4-40
4-19	White River Plan 1 (Map 1 of 2)	4-42
4-20	White River Plan 1 (Map 2 of 2)	4-43



<u>Fig</u>	<u>ure</u> <u>Title</u>	Page
4-21	White River Plan 2 (Map 1 of 2)	4-44
	White River Plan 2 (Map 2 of 2)	
4-23	Total Sewer Separation Plan 3	
4-24	Watershed Improvement Projects	
4-25	Wet-weather Treatment Improvements Recommended for the Belmont AWT Plant	
4-26	General Layout of Belmont AWT Plant Wet-weather Treatment Improvements	4-52
4-27	Annual Average System Flowrates	
4-28	Regression Analysis of System Annual Flowrates	
4-29	Southport Facility Process Flow Sheet	4-63
4-30	Southport Facility Expansion and CSO Treatment	4-64
4-31	Alternative Concepts for the Interplant Connection	4-66
4-32	Proposed Routing of the Interplant Connection	4-68
4-33	Capital Cost Comparison of Interplant Connection Concepts	4-69
4-34	CSO Control Plan 1	4-71
4-35	CSO Control Plan 2	4-72
4-36	CSO Control Plan 1 Cost Estimate by Percent Capture	4-76
4-37	CSO Control Plan 2 Cost Estimate by Percent Capture	4-77
4-38	Annual Volume Discharge by Percent Capture	4-81
4-39	Annual BOD Reduction by Percent Capture	4-82
4-40	White River Watershed Plan Options and Level of Control Evaluated: Percent Capture	
	and E. coli Levels	4-85
4-41	White River Watershed Plan Options and Level of Control Evaluated: E.coli Bacteria -	
	Exceedances	4-86
4-42	Present Worth Costs for Each Alternative by Percent Capture	4-89
4-43	Present Worth Costs for Each Alternative by E. coli Days per Year over	
	235 cfu/100mL	4-90
4-44	Present Worth Costs for Each Alternative by E. coli Days per Year Over	
	10,000 cfu/100mL	4-91
4-45	Present Worth Costs (\$/Gal. Captured) for Each Alternative by Percent Capture	4-92
4-46	Present Worth Costs (\$/ lb BOD Removed) for Each Alternative by Percent Capture	4-92



<u>Figu</u>	<u>re</u> <u>Title</u>	<u>Page</u>
4-46	Present Worth Costs (\$/lb BOD Removed) for Each Alternative by Percent Capture	e4-93
4-47	Present Worth Costs (\$M/unit of E. coli Bacteria Removed) for Each Alternative	
	by Percent Capture	4-94
4-48	Present Worth Costs for Mixed Plans by Percent Capture	4-95
4-49	Current Conditions Compared to 93% Capture Level of Control	4-99
4-50	Current Conditions Compared to 95% Capture Level of Control	4-100
4-51	Current Conditions Compared to 97% Capture Level of Control	4-101
5-1	Stream Line Insert Card	5-11
5-2	Public Meeting Invitation	5-13
5-3	Public Meeting Flier	5-14
5-4	Public Meeting Display Advertisement	5-14
5-5	Clean Stream Team Website with CSO Control Options	5-15
5-6	Ranking of Neighborhood Issues	5-16
5-7	Comparison of Costs and Benefits of Systemwide Plan Options	5-17
5-8	Comparison Costs and Benefits of U.S. EPA Suggested Plan	5-18
5-9	Neighborhood Impacts Histograms	5-19
5-10	Environmental Benefits and Cost Impacts Histograms	5-20
6-1	Projected Revenue Requirements	6-3
6-2	Residential Indicator Criteria - U.S. EPA Guidance	6-5
6-3	Residential Indicator, 2005-2025 Recommended Plan, 20-Year Implementation	6-5
6-4	Wholesale Customers	6-6
6-5	Indianapolis Regional Major Capital Investment Programs / Projects 2001-2025	
	(20-year ENR Indexed)	6-7
6-6	Permittee Financial Capability Indicator Criteria	6-11
6-7	Jobs Lost 2001-2004	6-14
6-8	Summary of Financial Capability Indicators: U.S. EPA Guidance	6-17
7-1	Systemwide Selected CSO Plan	7-3
7-2	Fall Creek Watershed Control Measures	7-9
7-3	Pogues Run Watershed Control Measures	 7-11
7-4	Pleasant Run Watershed Control Measures	7-12



<u>Figu</u>	<u>Title</u>	<u>Page</u>
7-5	Eagle Creek Watershed Control Measures	7-13
7-6a	White River Watershed Control Measures (Map 1 of 2)	7-15
7-6b	White River Watershed Control Measures (Map 2 of 2)	7-16
7-7	General Layout of Belmont AWT Plant Treatment Improvements	7-18
7-8	Southport AWT Plant Improvements Schematic	7-20
7-9	Proposed Routing of the Interplant Connection	7-21
7-10	Modeled Comparison of Average Annual CSO Volume for Baseline Conditions and the	
7 11	LTCP	
7-11	Modeled Comparison of Average Annual CSO Volume for Baseline Conditions and the LTCP by Individual Watershed	
7-12	Estimated Number of Storms Causing Overflows Per Year, 1950-2003 Baseline Condition	
	vs. Selected LTCP	7-25
7-13	Estimated Number of Storms Causing Overflows During April-October, 1950-2003 Bas	eline
	Conditions vs.Selected LTCP	7-26
7-14	Estimated Storms Causing Overflows Distributed by Month, 1950-2003 Baseline Condit	tions
	vs. Selected LTCP	7-27
7-15	Program Phasing Implementation Schedule	7-33
8-1	Receiving Stream Monitoring Stations	8-13
8-2	CSO Outfall and Rainfall Monitoring Stations	8-14
8-3	Sample Percent Capture Hydrograph	8-18
9-1	Percent of Days Per Year Attaining Recreational Use vs. Level of Control	9-6
9-2	Streamflow Conditions: White River	9-8
9-3	Streamflow Conditions: Fall Creek	9-9
9-4	Streamflow Conditions: Pleasant Run	9-10
9-5	Streamflow Conditions: Pogues Run	· 9 - 11
9-6	Streamflow Conditions: Eagle Creek	9-12
9_7	Historic Sites and Historic Areas within Combined Sewer Area	9-14

